# PORT PHILLIP SURVEY 1957–1963.

## ALGAE.

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SUMMARY.

Identifications are given of some 172 species of marine algae collected during the Port Phillip Survey, together with their distribution within the Bay. The great majority occur only in the rough water conditions of Port Phillip Heads and just within, but certain species are largely confined to the very calm Corio Bay and south-western part of the Bay, while others are not found within this area.

## INTRODUCTION.

The marine algae of the Port Phillip region are known mainly from early collections by W. H. Harvey, F. von Mueller and others, and particularly from the extensive collections of J. B. Wilson (1892) made (largely by dredging) over several years, near Port Phillip Heads.

The algae collected by the Port Phillip Survey 1957–63 resulted from both diving and dredging, and cover essentially the areas distinctly below low-tide level. Intertidal and just subtidal algae are included only incidentally in this list. Minute epiphytic algae are also omitted. The vast area of the Bay precludes a detailed account of the distribution of many species, particularly the less common ones. Hence the apparent absence of a species from most of the Bay must be viewed with caution if the species is known from well within the Bay. Nevertheless certain species are characteristic of regions within the Bay and these will be discussed briefly below.

For convenience in recording or discussing the species distribution, the Bay has been divided into the following regions (see Charts 1 and 2 back of volume).

| | | |
|---|---|---|
| Northern bay | .. | areas 1–14. |
| Corio Bay | .. | areas 15–18, 25–30, 37–40. |
| South-western bay | .. | areas 42, 49, 50. |
| Central bay | .. | areas 19–22, 31–34, 43–46, 51–54. |
| Eastern bay | .. | areas 23–24, 35–36, 47–48, 55. |
| Southern bay | .. | areas 60–64, 67–70. |
| Port Phillip Heads | .. | areas 58, 59. |
| Outside bay | .. | areas 56–57, 65–66. |

The distribution for each species is given according to the above regions of the bay, followed by the area number with the station number in brackets. The data for these collection localities is given in the Table A (back of volume). Only records resulting from the Survey are given below, and no drift specimens are included.

References to each species indicate where either a description of the species can be found or to further literature giving this.

Collections were usually made in duplicate. The first set is now deposited in the Algal Herbarium of the Department of Botany, University of Adelaide, and the second set in the Melbourne National Herbarium.

## NOTES ON THE DISTRIBUTION OF MARINE ALGAE WITHIN PORT PHILLIP.

The vast majority of the species collected are confined to the Port Phillip Heads region, where they are subject to strong wave action and currents, with clean water. Within the Bay conditions are not nearly so suitable for marine algae, due to the loose bottom and lack of firm substrata. The relatively shallow water, more variable and often higher temperatures than outside the Bay, more suspended matter, and considerable pollution from shipping and from the city of Melbourne are all factors reducing the number of algae which grow within the Bay.

The only exception amongst the marine algae to their need for a solid substratum is the green alga *Caulerpa*, several species of which grow well on a muddy-sandy area due to their basal surculi or rhizome-like parts. *C. remotifolia* is found in most parts of the Bay, and *C. geminata* and *C. longifolia* f. *crispata* occur mainly in the very calm Corio Bay and along the western coast of the Bay. These species may cover areas many square meters in extent as a virtually closed community. Often however they occur mixed with the marine angiosperm *Zostera*.

The following lists give some idea of the better defined algal distributions within the Bay, based on the Survey records.

**Fairly general within the Bay.**

*Ulva lactuca, Caulerpa remotifolia,* probably *Codium harveyi* and *Cutleria multifida, Solieria robusta, Griffithsia teges, Wrangelia protensa, Polysiphonia cancellata, Dictymenia harveyana* and *Laurencia filiformis.*

**Largerly restricted to Corio Bay, the calm western coast, and in some cases the Northern bay.**

*Caulerpa geminata, C. longifolia* f. *crispata, Acetabularia peniculus, Dictyota dichotoma, Caulocystis uvifera, Rhabdonia coccinea, Rhodoglossum foliiferum, Botryocladia obovata, Lophothalia verticillata, Jeanerettia pedicellata.*

**Around the Bay, excluding the Central bay and very calm western areas.**

*Caulerpa brownii, Dictyopteris muelleri, Ecklonia radiata, Cystophora retroflexa, Sargassum paradoxum, S. verruculosum.*

Comparisons between now and past times of the algal distribution within Port Phillip Bay are not possible owing to lack of previous records of the algae collected *in situ*. Nearly all previous collections were of drift material, or of species growing near low-tide level, with the exception of the dredge collections of J. B. Wilson near Port Phillip Heads (Wilson, 1892). Comparison of the present Survey list with that of Wilson show that a very large number of his species were not recollected during the survey. Many of these are probably rare, but drift material from Port Phillip Heads (not included in this list) shows that the algal flora of this region is still very much richer than is indicated by the Survey list. A thorough survey of intertidal and just subtidal algae would also increase this list considerably.

Phylum CHLOROPHYTA.

Order **Ulvales.**

Family ULVACEAE.

*Ulva L.*

*Ulva lactuca L.*

Womersley 1956: 353.

Northern bay—area 6 (118). Corio Bay—areas 40 (101), 17 (171–2). Southern bay—area 60 (85).

*Ulva lactuca* is more widely distributed throughout Port Phillip Bay than the above collections examined by the author. During the Survey it was also observed in all peripheral areas of the bay, but not in the central bay. On rock platforms around the Heads an *Ulva* with a more dissected, ribbon-like and undulating thallus occurs, as shown by a collection from Portsea—area 59 (23). This may prove to be specifically distinct.

*ENTEROMORPHA* Link.

No specimens of *Enteromorpha* were collected during the Survey, though the genus is common on jetties, rocks and shells in the lower intertidal and upper sublittoral around the shores of the Bay.

Order **Cladophorales.**

Family CLADOPHORACEAE.

*Chaetomorpha* Kuetzing.

*Chaetomorpha darwinii* (Hooker) Kuetzing.

Womersley 1956: 365.

Port Phillip Heads—area 58 (150–4). Outside bay—area 56 (295).

*Chaetomorpha indica* (Kuetz.) Kuetz.

Womersley 1956: 357.

South-western bay—entrance to Swan Bay, area 50 (228).

*Cladophora* Kuetzing.

Many species of *Cladophora* are notoriously difficult to determine, and in several cases the Port Phillip material was inadequate.

*Cladophora bainesii* Harvey.

Womersley 1956: 358.

Eastern bay—area 47 (29, 30).

*Cladophora fascicularis* (Mert.) Kuetzing.

Womersley 1956: 358.

Northern bay—area 7 (St. Kilda Pier).

A fairly robust form of this species, with only slightly fasciculate branch ends.

*Cladophora* sp.

Northern bay—area 5 (166). Eastern bay—area 55 (147).

*Cladophora* sp.

Northern bay—area 10 (103).

*Cladophora* sp.

Corio Bay—area 27 (47).

## Order **Siphonales.**

### Family Bryopsidaceae.

*Bryopsis Lamouroux.*

*Bryopsis plumosa* (Huds.) C. Agardh.

Womersley 1956: 364.

Northern bay—area 10 (103). Probably widespread.

### Family Caulerpaceae.

*Caulerpa* Lamouroux.

Ten species of *Caulerpa* occur within the Port Phillip survey area. *C. brownii*, *C. geminata*, *C. longifolia* f. *crispata*, and *C. remotifolia* are prominent ecologically, especially in the Northern bay and Corio Bay. Other species are largely confined to the Heads or just inside, though in some cases recognized forms occur more within the Bay. The distribution of the common species is shown in Chart III (back of volume).

*Caulerpa brownii* (C. Agardh) Endlicher.

Womersley 1956: 365.

Northern bay—areas 6 (66–7, 137), 9 (178), 10 (15, 105), 14 (95, 116–117). Corio Bay—area 18 (59, 62). Eastern bay—area 23 (3), 55 intertidal). Southern bay—area 63 (18). South-western bay—area 50 (230–1). Port Phillip Heads—area 59 (23, 79, 225).

A common species in the northern, eastern and southern parts of Port Phillip, but not extending into the very calm areas of Corio Bay. Common also on rock platforms outside Port Phillip, in pools at or below low-tide level. The slenderer forms occur in calmer water.

*Caulerpa cactoides* (Turner) C. Agardh.

Womersley 1956: 365.

South-western bay—area 50 (230–1). Port Phillip Heads—area 58 (150–4).

*Caulerpa flexilis* Lamouroux.

Womersley 1956: 366.

South-western bay—area 50 (228). Port Phillip Heads—areas 58 (150–4), 59 (36). Outside bay—area 66 (291).

var. *muelleri* (Sonder) Womersley.

Womersley 1956: 367.

Outside bay—areas 56 (295), 58 (293).

*Caulerpa geminata* Harvey 1854.

[*C. sedoides* (R. Br. ex Turner) C. Agardh.]

Womersley 1956: 369.

Unfortunately *Fucus sedoides* R. Br. ex Turner 1811 (= *Caulerpa*) is predated by both *Fucus sedoides* Goodenough and Woodward 1797 (= *Gastroclonium ovatum* (Huds.) Pap.) and by *Fucus sedoides* Desfontaines 1798 (= *Cystoseira sedoides* (Desf.) C. Ag.). The earliest specific name available for the Australian *Caulerpa* is *C. geminata* Harvey 1854.

Northern bay—areas 9 (62, 178), 11 (190, 192). Corio Bay—areas 16 (142), 17 (170–1), 18 (307), 26 (126, 301), 27 (41, 47, 138, 242), 28 (315), 29 (107), 37 (40), 38 (311), 39 (44, 313). Port Phillip Heads—area 58 (150–4).

*C. geminata* is a common alga, often in extensive beds, in the Northern bay and Corio Bay, generally in $\frac{1}{2}$ to 2 fathoms, occasionally up to 5 fathoms. *C. geminata* shows several forms from outside Port Phillip Bay to calm localities within the bay. The rough coast form, found outside the Heads, has spherical to shortly ovoid vesicles arranged radially. On both fairly rough and on somewhat calmer coasts the form with distichous, slightly more elongate vesicles appears, while in the calm areas of the Northern bay and Corio Bay the vesicles are distichous, sometimes irregularly separated on the axes, and often 2–2$\frac{1}{2}$ times as long as broad. In many specimens of the latter form the vesicles are somewhat constricted $\frac{1}{2}$–$\frac{2}{3}$ of the way from the base to apex; this may be due to later more active growth of the apical portion of developing vesicles.

*Caulerpa longifolia* C. Agardh.

Womersley 1956: 367.

Outside bay—area 56 (295).

f. *crispata* (Harv.) Womersley.

Womersley 1956: 368.

Northern bay—areas 5 (56–7), 166, 168, 169), 9 (178), 10 (15), 14 (116–7). Corio Bay—areas 16 (142), 17 (170–3), 18 (59, 62, 307), 27 (138, 284). Central bay—area 19 (304). Port Phillip Heads—area 58 (150–4).

While the typical form of the species occurs outside Port Phillip, within the Bay and its calmer conditions only f. *crispata* occurs. It is largely restricted to the Northern bay and Corio Bay, where it is one of the commonest algae.

*Caulerpa obscura* Sonder.

Womersley 1956: 358.

Port Phillip Heads—area 59 (23, 36, 79).

This is a rough water species which only just extends inside the Bay.

*Caulerpa remotifolia* Sonder.

Womersley 1956: 369.

Northern bay—areas 5 (56–7), 9 (62, 178), 10 (15), 11 (190, 192). Corio Bay—areas 17 (173), 27 (41, 284), 40 (101). Central bay—area 19 (304). South-western bay—area 50 (230, 238). Eastern bay—areas 14 (5), 47 (30).

*C. remotifolia* only occurs in calm, sheltered waters and is particularly plentiful in the Northern bay and Corio Bay. Most of the specimens are fairly densely pinnate for this species.

*Caulerpa scalpelliformis* (R. Br. ex Turner) C. Agardh.

Womersley 1956: 369.

Port Phillip Heads—area 59 (36, 79).

This species is confined to the Heads and outer rough coasts.

*Caulerpa simpliciuscula* (Turner) C. Agardh.

Womersley 1956: 370.

Northern bay—areas 9 (178), 11 (190, 192). Port Phillip Heads—areas 58 (150–4), 59 (23).

Specimens from near and outside the Heads are typical of the species, those from the Northern bay tend to var. *laxa*.

var. *laxa*.

Womersley 1956: 370.

Northern bay—area 6 (118).

*Caulerpa trifaria* Harvey.

Womersley 1956: 371.

Port Phillip Heads—areas 58 (150–4), 59 (36, 225, 226). Southern bay—area 60 (85).

Family CODIACEAE.

*Codium* Stackhouse.

*Codium duthiae* Silva.

Silva and Womersley 1956: 275.

Port Phillip Heads—area 59 (36, 79).

*Codium fragile* (Sur.) Hariot. s. sp. *novae-zelandiae* (J. Ag.) Silva.

Silva and Womersley 1956: 285.

Northern bay—area 6 (118). Eastern bay—area 48 (32).

This is more usually a rough water species and is probably of odd occurrence only in Port Phillip Bay.

*Codium galeatum* J. Agardh.

Silva and Womersley 1956: 273.

Port Phillip Heads—area 59 (36, 79).

Another rough water species, confined to the Heads region.

*Codium harveyi* Silva.

Silva and Womersley 1956: 277.

Corio Bay—areas 16 (143), 27 (41, 138). Eastern bay—areas 14 (95), 55 (22). Southern bay—area 61 (37).

This is typically a calm water species.

*Codium perrinae* Lucas.

Silva and Womersley 1956: 267.

Eastern bay—area 55 (148).

Order **Dasycladales.**

Family DASYCLADACEAE.

*Acetabularia* Lamouroux.

*Acetabularia peniculus* (R. Br. ex Turner) Solms-Lauback.

Womersley 1956: 378.

South-western bay—area 49 (238).

This record is from the very sheltered Swan Bay.

Phylum PHAEOPHYTA.

Order **Ectocarpales.**

Family ECTOCARPACEAE.

*Ectocarpus* Lyngbye.

*Ectocarpus confervoides* (Roth) Le Jolis. May 1939.

Southern bay—area 60 (268).

Probably widespread within the bay, on rock and on other algae.

*Feldmannia* Hamel.

*Feldmannia globifer* (Kuetzing) Hamel.

Cardinal 1964: 57.

Southern bay—area 60 (268).

Epiphytic and probably more widespread.

Order **Sphacelariales.**

Family SPHACELARIACEAE.

*Sphacelaria* C. Agardh.

*Sphacelaria furcigera* Kuetzing.

Sauvageau 1914: 145.

Southern bay—area 60 (268).

Probably widespread.

*Halopteris* Kuetzing.

*Halopteris funicularis* (Mont.) Sauvageau.

Sauvageau 1914: 393.

Port Phillip Heads—area 59 (36, 234). Outside bay—area 56 (295).

*Halopteris funicularis* (Mont.) Sauvageau.

Sauvageau 1914: 416.

Port Phillip Heads—area 59 (36).

Both species of *Halopteris* are rough water alga confined to the Heads or outside.

*Cladostephus* C. Agardh.

*Cladostephus verticillatus* (Lightfoot) C. Agardh.

Sauvageau 1914: 488.

Southern bay—area 63 (17–19, 21). Port Phillip Heads—area 59 (36, 234). Outside bay—area 56 (295).

Order **Cutleriales.**

Family CUTLERIACEAE.

*Cutleria* Greville.

*Cutleria multifida* (Smith) Greville.

Womersley 1950: 150.

Northern bay—area 5 (166). Central bay—area 43 (303). Eastern bay—area 55 (39).

These few collections propably indicate that *Cutleria* occurs as scattered plants throughout the bay except in very calm areas or near the Heads.

## Order **Dictyotales.**

### Family DICTYOTACEAE.

### *Dictyoteae.*

### *Dictyota* Lamouroux.

The species of *Dictyota* are notoriously difficult to separate. Except for *D. dichotoma* the following species are represented by a single collection, but the specimens agree well with the type material.

#### *Dictyota alternifida* J. Agardh.

J. Agardh 1894: 80.

Northern bay—area 5 (52).

#### *Dictyota apiculata* J. Agardh.

J. Agardh 1894: 67; Womersley 1950: 150.

Corio Bay—area 17 (170–1).

#### *Dictyota dichotoma* (Hnds). Lamx.

Lucas 1936: 91; Womersley 1950: 150.

Northern bay—areas 6 (118, 137), 7 (205). Corio Bay—areas 17 (172), 27 (49).

#### *Dictyota furcellata* (C. Ag.) J. Ag.

Womersley 1950: 150.

South western bay—area 50 (229).

#### *Dictyota* sp.

Port Phillip Heads—area 59 (226).

### *Pachydictyon* J. Agardh.

#### *Pachydictyon furcellatum* (Harv.) J. Ag.

Lucas 1936: 92.

Port Phlip Heads—area 59 (87).

#### *Pachydictyon paniculatum* J. Ag.

Lucas 1936: 92; Womersley 1950: 152.

Port Phillip Heads—area 59 (79, 214).

### *Dilophus* J. Agardh.

#### *Dilophus fastigiatus* (Sonder) J. Agardh.

Lucas 1936: 93; Womersley 1950: 152.

Outside bay—area 56 (295).

#### *Dilophus* sp.

Port Phillip Heads—area 59 (214).

The form of this single collection is similar to *D. foliosus* J. Ag. but broader and more robust. The thallus shows two medullary cells in young parts, four in older parts, and is uniform across the thallus with narrower edges. *D. foliosus* shows thicker edges, with more medullary cells than in the central region.

*Lobospira* Areschoug.

*Lobospira bicuspidata* Areschoug.

Lucas 1936: 93; Womersley 1950: 153.

Corio Bay—area 26 (300–1). South-western bay—area 50 (229). Port Phillip Heads—areas 58 (150–4), 59 (36).

*Zonarieae.*

*Dictyopteris* Lamouroux.

*Dictyopteris muelleri* (Sonder) Reinbold.

Womersley 1950: 153.

Northern bay—area 13 (92). Eastern bay—area 55 (35). South-western bay—area 50 (230–1). Port Phillip Heads—area 59 (79, 87, 226).

Probably fairly common except in very calm areas.

*Distromium* Levring.

*Distromium* ?

Eastern bay—area 55 (149).

Sterile material.

*Padina* Adanson.

*Padina fraseri* (Grev.) J. Ag.

Lucas 1936: 88.

Port Phillip Heads—area 59 (79).

This is a fairly rough water species.

*Taonia J. Agardh.*

*Taonia australasica* J. Agardh.

J. Agardh 1894: 30.

Corio Bay—areas 26 (126, 301), 39 (313).

This little know species appears to be confined to very calm areas. Unfortunately all specimens are sterile, so this determination is provisional.

*Zonaria* C. Agardh.

*Zonaria turneriana* J. Agardh.

Lucas 1936: 86.

Northern bay—area 13 (93). Corio Bay—area 30 (280). Eastern bay—areas 23 (2), 55 (35, 148–9). Southern bay—areas 61 (37), 64 (164). Port Phillip Heads—area 59 (23, 36, 79).

This is a common species under rough conditions at and outside the Heads and on the Eastern side of the bay.

*Zonaria sinclairii* H. and H.?

Port Phillip Heads—areas 58 (293), 59 (36).

Juvenile, sterile specimens only.

Order **Sporochnales.**

Family SPOROCHNACEAE.

*Bellotia* Harvey.

*Bellotia eriophorum* Harvey.

Lucas 1936: 97.

Port Phillip Heads—area 59 (36, 226).

*Carpomitra* Kuetzing.

*Carpomitra costata* (Stackh.) Batters.

Lindauer, Chapman and Aiken 1961: 245.

*Carpomitra costata* (Stackh.) Batters.

Lindauer, Chapman and Aiken 1961 : 245.

Port Phillip Heads—area 59 (36).

Order **Dictyosiphonales.**

Family PUNCTARIACEAE.

*Colpomenia* Derbes and Solier.

*Colpomenia sinuosa* (Roth) Derb. and Sol.

Lindauer, Chapman and Aiken 1961: 261.

Port Phillip Heads—area 59 (36).

Probably more widespread within Port Phillip Bay.

Order **Laminariales.**

Family ALARIACEAE.

*Ecklonia* Hornemann.

*Ecklonia radiata* (C.Ag.) J. Ag.

Lucas 1936: 95.

Northern bay—areas 5 (52), 6 (67), 13 (92). Eastern bay—areas 14 (4), 23 (3, 7), 55 (35). Southern bay—area 61 (37). Port Phillip Heads—area 59 (79).

Common on any solid substratum within the bay, except in the calmest areas.

Family LESSONIACEAE.

*Macrocystis* C. Agardh.

*Macrocystis angustifolia* Bory.

Womersley 1954: 119.

Northern bay—area 10 (103).

Otherwise common in the sublittoral around and outside Port Phillip Heads.

Order **Fucales.**

Family DURVILLEACEAE.

*Durvillea* Bory.

*Durvillea potatorum* (Lab.) Areschoug.

[*Sarcophycus potatorum* (Lab.) Kuetz.]

Lucas 1936: 82.

A dominant alga in the upper sublittoral outside and at the Heads.

Family *Fucaceae.*

*Xiphophora* Montagne.

*Xiphophora chondrophylla* (R.Br.) Mont.

Lindauer, Chapman and Aiken 1961: 287.

Port Phillip Heads—area 58 (150–4).

Family SEIROCOCCACEAE.

*Seirococcus* Greville.

*Seirococcus axillaris* (R.Br.) Grev.

Lucas 1936: 68.

South-western bay—area 42 (265). Port Phillip Heads—area 58 (150–4).

This is a rough coast species restricted to outside or near the Heads.

Family CYSTOSEIRACEAE.

*Acrocarpia* Areschoug.

*Acrocarpia paniculata* (Turner) Areschoug.

Womersley 1964: 98.

Port Phillip Heads—areas 58 (293), 59 (36). Outside bay—area 56 (295).

A rough coast species confined to the Heads.

*Caulocystis* Areschoug.

*Caulocystis cephalornithos* (Labill.) Areschoug.

Womersley 1964: 102.

Eastern bay—area 23 (2).

*Caulocystis uvifera* (C.Ag.) Areschoug.

Womersley 1964: 101.

Northern bay—area 10 (15). Corio Bay—areas 16 (142–3), 27 (41, 138–9), 28 (140–1), 37 (40), 39 (42–6, 313), 40 (101). South-western bay—areas 42 (265, 281), 50 (230–1, 266). Port Phillip Heads—area 59 (23, 36, 79, 213, 225, 226). Outside bay—area 66 (291) (rough reef form.).

This species is found only on the western side of Port Phillip Bay and outside the bay. In the Corio bay area it is found in its typical form but tends to be more robust with slightly ovoid vesicles from the rougher Port Phillip Heads area. Only one specimen definitely referable to *C. cephalornithos* was collected, on the eastern side of Port Phillip Bay.

*Cystophora* J. Ag.

Most species of *Cystophora* occur at the Heads or just within the bay (e.g., in the south-western bay area). However *C. retroflexa* occurs around most of the bay except in the very calm Corio Bay and the Central Bay.

*Cystophora congesta* Womersley and Nizamuddin.

Womersley 1964: 86.

South-western bay—area 50 (228). Port Phillip Heads—area 58 (150–4).

*Cystophora expansa* (Areschoug) Womersley.

Womersley 1964: 77.

Port Phillip Heads—area 59 (79).

*Cystophora grevillei* (C. Ag. ex. Sonder) J. Ag.

Womersley 1964: 83.

Port Phillip Heads—area 59 (226).

*Cystophora monilifera* J. Agardh.

Womersley 1964: 75.

Southern bay—area 60 (85). Port Phillip Heads—area 59 (36).

*Cystophora moniliformis* (Esper) Womersley and Nizamuddin.

Womersley 1964: 71.

Eastern bay—area 55 (35). Southern bay—area 63 (164). Port Phillip Heads—areas 58 (150-4), 59 (23).

*Cystophora retorta* (Mertens) J. Ag.

Womersley 1964: 92.

Southern bay—area 63 (20).

*Cystophora retroflexa* (Labill.) J. Ag.

Womersley 1964: 89.

Northern bay—area 14 (95). Eastern bay—area 55 (148). South-western bay—area 42 (281). Southern bay—area 61 (37).

Occurring as scattered plants throughout rougher parts of the bay on suitable firm substrata.

*Cystophora siliquosa* J. Ag.

Womersley 1964: 93.

South-western bay—area 50 (230–1). Port Phillip Heads—areas 58 (150–4), 59 (23, 79).

Confined to rough conditions outside and just inside the Heads.

*Cystophora subfarcinata* (Mertens) J. Ag.

Womersley 1964: 95.

South-western bay—area 42 (38). Port Phillip Heads—area 59 (23).

*Cystophora torulosa* (R.Br. ex Turn.) J. Ag.

Womersley 1964: 85.

South-western bay—area 50 (230–1).

*Myriodesma* Decaisne.

*Myriodesma integrifolia* Harvey.

Lucas 1936: 79.

Central bay—area 31 (10). Eastern bay—area 47 (30). Port Phillip Heads—area 59 (87).

Family SARGASSACEAE.

*Sargassum* C. Agardh.

Many collections of *Sargassum* comprise only the basal leaves or sterile plants, which are quite inadequate for determination. The following species are represented by adequate specimens, but others probably occur in the bay, including species of *Eusargassum*. These sterile *Sargassum* specimens were collected from almost all parts of the Bay.

*Sargassum decipiens* (R. Br. ex Turner) J. Agardh.

Womersley 1954: 348.

South-western bay—area 42 (108–9). Port Phillip Heads—areas 58 (150–4), 59 (79).

*Sargassum heteromorphum* J. Agardh.

Womersley 1954: 345.

South-western bay—area 42 (108–9).

*Sargassum paradoxum* (R. Br.) Hooker and Harvey.

J. Agardh 1889: 69, pl. 20 (II).

Northern bay—area 6 (118). Eastern bay—area 55 (39). Southern bay—area 63 (163). Port Phillip Heads—area 59 (79).

*Sargassum sonderi* (J. Ag.) J. Agardh.

Womersley 1954: 346.

Port Phillip Heads—area 59 (79).

*Sargassum verruculosum* (Mertens) C. Agardh.

Womersley 1954: 350.

Northern bay—area 5 (51). South-western bay—area 42 (108, 265). Southern bay—area 63 (21). Port Phillip Heads—area 59 (23, 36, 224, 226).

## Phylum RHODOPHYTA.

### Order **Nemalionales.**

#### Family HELMINTHOCLADIACEAE.

*Liagora* Lamouroux.

*Liagora harveyiana* Zeh.

Lucas and Perrin 1947: 134.

South-western bay—area 50 (229).

#### Family BONNEMAISONIACEAE.

*Delisea* Lamouroux.

*Delisea elegans* (Ag.) Montagne.

Lucas and Perrin 1947: 240.

Southern bay—area 59 (214).

### Order **Gelidiales.**

#### Family GELIDIACEAE.

*Gelidium* Lamouroux.

*Gelidium australe* J. Agardh.

Lucas and Perrin 1947: 143.

Port Phillip Heads—area 58 (150–4).

*Gelidium glandulaefolium* H. & H.

Lucas and Perrin 1947: 143.

Outside bay—area 66 (291).

*Pterocladia* J. Agardh.

*Pterocladia capillacea* (Gmel.) Bornet and Thuret.

Womersley 1950: 165.

Port Phillip Heads—area 59 (36) .

*Pterocladia lucida* (R. Br.) J. Ag.

Lucas and Perrin 1947: 144.

Port Phillip Heads—areas 58 (293), 59 (36). Outside bay—area 66 (291).

Order **Cryptonemiales.**

Family DUMONTIACEAE.

*Dasyphloea* Montagne.

*Dasyphloea insignis* Montagne.

[*D. tasmanica* Harvey].

Lucas and Perrin 1947: 384.

South-western bay—area 50 (229). Port Phillip Heads—area 59 (226).

Family CORALLINACEAE.

*Cheilosporum* Areschoug.

*Cheilosporum elegans* (H. & H.) Aresch.

*C. sagittatum* (Lamx.) Aresch.

Lucas and Perrin 1947: 396.

Port Phillip Heads—area 58 (150–4). Outside bay—area 66 (291).

*Corallina* L.

*Corallina cuvieri* Lamx.

Lucas and Perrin 1947: 399.

Southern bay—area 61 (37). Port Phillip Heads—area 59 (23, 36, 79). Outside bay—areas 56 (295), 66 (291).

*Corallina officinalis* L.

Womersley 1950: 167.

Northern bay—areas 5 (54), 6 (118). Outside bay—area 56 (295).

*Jania* Lamouroux.

*Jania fastigiata* Harvey.

Lucas and Perrin 1947: 397.

Port Phillip Heads—area 58 (150–4).

*Metagoniolithon* W. v. Bosse.

*Metagoniolithon stelligerum* (Lamk.) W. v. Bosse.

Lucas and Perrin 1947: 394.

Port Phillip Heads—area 59 (79, 234).

Family GRATELOUPIACEAE.

*Grateloupia* C. Agardh.

*Grateloupia filicina* var. *luxurians* A. & E. S. Gepp.

Lucas and Perrin 1947: 377.

Northern bay—area 6 (118).

*Polyopes* J. Agardh.

*Polyopes constrictus* (Turn.) J. Ag.

Lucas and Perrin 1947: 379.

Port Phillip Heads—area 59 (36).

Family KALLYMENIACEAE.

*Callophyllis* Kuetzing.

*Callophyllis ceratoclada* (J. Ag.) Womersley.

Eastern bay—area 23 (3, 9).

*Callophyllis harveyana* J. Agardh.

Lucas and Perrin 1947: 158.

Port Phillip Heads—area 59 (226).

Order **Gigartinales.**

Family GRACILARIACEAE.

*Gracilaria* Greville.

*Gracilaria confervoides* (L.) Grev.

Lucas and Perrin 1947: 188. May 1948: 18.

Central bay—area 51 (270). Eastern bay—area 55 (35).

*Gracilaria furcellata* Harvey.

May 1948: 53.

South-western bay—area 42 (38, 281). Southern bay—area 60 (85, 235).

*Gracilaria secundata* Harvey.

May 1948: 46.

South-western bay—area 49 (238).

*Melanthalia* Montagne.

*Melanthalia obtusata* (Lab.) J. Ag.

Lucas and Perrin 1947: 183.

Port Phillip Heads—areas 58 (293), 59 (36).

Family PLOCAMIACEAE.

*Plocamium* Lamouroux.

*Plocamium angustum* (J. Ag.) H. & H.

Lucas and Perrin 1947: 211.

Southern bay—area 60 (85). Port Phillip Heads—areas 58 (150–4), 59 (36, 79, 224, 226). Outside Heads—area 66 (291).

*Plocamium coccineum* (Huds.) Lyngbye.

Newton 1931: 443.

Port Phillip Heads—area 59 (36).

*Plocamium costatum* (J. Ag.) H. & H.

Lucas and Perrin 1947: 212.

Port Phillip Heads—area 59 (36, 79). Outside bay—area 56 (295).

*Plocamium mertensii* (Grev.) Harvey.

Lucas and Perrin 1947: 215.

South-western bay—area 50 (229).

*Plocamium preissianum* Sonder.

Lucas and Perrin 1947: 211.

Outside bay—area 66 (291).

Family SPHAEROCOCCACEAE.

*Phacelocarpus* Endl. and Diesing.

*Phacelocarpus labillardieri* (Mert.) J. Agardh.

Lucas and Perrin 1947: 181.

Port Phillip Heads—area 59 (87). Outside bay—area 56 (295).

## Family Sarcodiaceae.

### *Nizymenia* Sonder.

### *Nizymenia australis* Sonder.

Lucas and Perrin 1947: 182.

Outside bay—areas 57 (294), 66 (291).

## Family Solieriaceae.

### *Solieria* J. Agardh.

### *Solieria mollis* Harvey.

Harvey 1863, synop: 41.

Port Phillip Heads—area 59 (36).

### *Solieria robusta* (Grev.) Kylin.

Lucas and Perrin 1947: 174.

Northern bay—areas 5 (54, 58), 9 (178), 11 (191), 13 (93). Corio Bay—areas 16 (142–3), 27 (41, 138–9), 28 (140–1). Eastern bay—areas 14 (4), 23 (3, 9). South-western bay—area 42 (38, 265, 281). Port Phillip Heads—area 59 (87, 226).

## Family Rhabdoniaceae.

### *Areschougia* Harvey.

### *Areschougia laurencia* (H. & H.) Harvey.

Lucas and Perrin 1947: 174.

Corio Bay—area 30 (280). South-western bay—area 42 (38, 265).

### *Erythroclonium* Sonder.

### *Erythroclonium muelleri* Sonder.

Lucas and Perrin 1947: 170.

Port Phillip Heads—area 58 (150–4).

### *Rhabdonia* Harvey.

### *Rhabdonia coccinea* Harvey.

Lucas and Perrin 1947: 171.

Northern bay—areas 6 (118), 10 (103–4), 14 (117). Corio bay—areas 16 (142–3), 17 (170–1), 27 (138–9), 28 (140–1).

### *Rhabdonia nigrescens* Harvey.

Lucas and Perrin 1947: 171.

Port Phillip Heads—area 59 (36).

### *Rhabdonia verticillata* Harvey.

Lucas and Perrin 1947: 172.

South-western bay—areas 42 (281), 50 (230–1). Port Phillip Heads—area 59 (79).

## Family Rhodophyllidaceae.

### *Rhodophyllis* Kuetzing.

### *Rhodophyllis goodwiniae* J. Agardh.

Lucas and Perrin 1947: 167.

Southern bay—area 59 (87, 214). Outside bay—area 66 (291).

Family HYPNEACEAE.

*Hypnea* Lamouroux.

*Hypnea episcopalis* H. & H.

Lucas and Perrin 1947: 191.

Eastern bay—areas 14 (4, 9), 23 (3).

*Hypnea* sp.

Corio Bay—area 27 (41). South-western bay—area 42 (38).

Family MYCHODEACEAE.

*Ectoclinium* J. Agardh.

*Ectoclinium dentatum* J. Agardh.

Kylin 1932: 65.

Outside bay—area 57 (295).

*Mychodea* Harvey.

*Mychodea compressa* Harvey.

Lucas and Perrin 1947: 156.

Port Phillip Heads—area 59 (79).

*Mychodea foliosa* (Harv.) J. Agardh.

Lucas and Perrin 1947: 156.

Port Phillip Heads—area 58 (150–4).

*Mychodea hamata* Harvey.

Lucas and Perrin 1947: 156.

Port Phillip Heads—area 58 (150–4).

*Mychodea membranacea* Harvey?

Lucas and Perrin 1947: 156.

Eastern bay—area 47 (29).

Family DICRANEMACEAE.

*Dicranema* Sonder.

*Dicranema grevillei* Sonder.

Lucas and Perrin 1947: 157.

Southern bay—area 59 (214).

Family PHYLLOPHORACEAE.

*Stenogramme* Harvey.

*Stenogramme leptophylla* J. Agardh.

Lucas and Perrin 1947: 154.

Port Phillip Heads—area 59 (87).

Family GIGARTINACEAE.

*Gigartina* Stackhouse.

*Gigartina brachiata* Harvey.

Womersley 1950: 174.

Northern bay—area 6 (118). Corio Bay—area 16 (284).

*Gigartina muelleriana* Setchell and Gardner.

Lucas and Perrin 1947: 149.

Port Phillip Heads—area 58 (150–4).

*Rhodoglossum* J. Agardh.

*Rhodoglossum foliiferum* (Harvey) J. Agardh.

[*Iridaea foliifera* Harvey.]

Harvey 1860: 326.

Northern bay—areas 5 (56), 6 (118), 9 (178). Corio Bay—areas 15 (284), 17 (170–1). Southern bay—area 60 (235).

*Rhodoglossum prolijerum* J. Agardh.

Womersley 1950: 174.

Northern bay—area 5 (56, 167).

Order **Rhodymeniales.**

Family RHODYMENIACEAE.

*Botryocladia* Kylin.

*Botryocladia obovata* (Sonder) Kylin.

[*Chrysymenia obovata* Sonder.]

Lucas and Perrin 1947: 203.

Northern bay—areas 5 (165), 9 (178), 10 (15, 103–6), 11 (190–1). Corio Bay—areas 18 (60–61, 307–8), 27 (41). Southern bay—areas 63 (249), 68 (218), 69 (99).

*Erythrymenia* Schmitz.

*Erythrymenia minuta* Kylin.

Kylin 1931: 13.

Outside bay—area 66 (291).

*Gloiosaccion* Harvey.

*Gloiosaccion brownii* Harvey.

Lucas and Perrin 1947: 202.

Corio Bay—area 30 (280). South-western bay—area 42 (265).

*Rhodymenia* Greville.

*Rhodymenia australis* Sonder.

Lucas and Perrin 1947: 200.

Northern bay—area 6 (137). South-western bay—area 42 (109). Port Phillip Heads—area 59 (87).

Family CHAMPIACEAE.

*Champia.*

*Champia affinis* var. *arcuata* H. & H.

Lucas and Perrin 1947: 206.

Port Phillip Heads—area 59 (234).

*Champia obsoleta* Harvey.

Lucas and Perrin 1947: 206.

Port Phillip Heads—area 59 (36).

*Champia tasmanica* Harvey.

Lucas and Perrin 1947: 207.

Port Phillip Heads—area 59 (36, 87). Outside bay—area 66 (291).

Order **Ceramiales.**

Family CERAMIACEAE.

*Antithamnion* Naegeli.

*Antithamnion mucronatum* (J. Ag.) Naegeli.

Lucas and Perrin 1947: 355.

Southern bay—area 60 (85).

*Ballia* Harvey.

*Ballia callitricha* (Ag.) Montagne.

Lucas and Perrin 1947: 350.

Port Phillip Heads—area 58 (293). Outside bay—area 66 (291).

*Ballia scoparia* (H. & H.) Harvey.

Lucas and Perrin 1947: 351.

Outside bay—area 56 (295).

*Ceramium* Roth.

As well as the three unidentified species listed below, fragments of *Ceramium* are common on larger algae.

*Ceramium* sp.

Corio Bay—area 17 (170–6). Eastern bay—area 55 (148).

*Ceramium* sp.

Corio Bay—area 27 (41).

*Ceramium* sp.

Northern bay—areas 3 (202), 7 (205).

*Griffithsia* C. Agardh.

*Griffithsia teges* Harvey.

Harvey 1854: 559.

Northern bay—area 6 (118), 13 (92–3). Corio Bay—area 30 (280). Eastern bay—area 47 (30). Port Phillip Heads—area 59 (23).

*Neomonospora* Setchell and Gardner.

*Neomonospora griffithsioides* (Sonder) Womersley.

Womersley 1950: 177.

Northern bay—area 6 (64, 67, 118). South-western bay—area 42 (108). Port Phillip Heads—area 59 (36).

*Spongoclonium* Sonder.

*Spongoclonium conspicuum* Sonder.

Harvey 1860: 355.

Port Phillip Heads—area 59 (226).

*Spyridia* Harvey.

*Spyridia opposita* Harvey.

Lucas and Perrin 1947: 363.

Port Phillip Heads—area 59 (36).

*Wrangelia* C. Agardh.

*Wrangelia protensa* Harvey.

Lucas and Perrin 1947: 137.

Northern bay—areas 6 (63), 14 (117). Corio Bay—area 17 (170–1). Eastern bay—area 47 (29). Southern bay—area 63 (16–21).

Family Dasyaceae.

*Dasya* C. Agardh.

*Dasya naccarioides* Harvey.

Lucas and Perrin 1947: 313.

Southern bay—area 60 (269). Port Phillip Heads—area 59 (23, 79).

*Dasya villosa* Harvey.

Lucas and Perrin 1947: 314.

Northern bay—area 14, (4, 5). Eastern bay—areas 23 (3), 55 (22). Corio Bay—area 37 (40).

*Heterosiphonia* Montagne.

*Heterosiphonia gunniana* (Harv.) Falk.

Lucas and Perrin 1947: 316.

Corio Bay—area 17 (170–1).

*Heterosiphonia muelleri* (Sond.) De Toni.

Lucas and Perrin 1947: 319.

South western bay—area 50 (230–1). Port Phillip Heads—area 59 (226).

Family Delesseriaceae.

*Acrosorium* Zanardini.

*Acrosorium uncinatum* (J. Ag.) Kylin.

Lucas and Perrin 1947: 223.

Northern bay—area 6 (137). Corio Bay—area 17 (170–1).

*Hymenena* Greville.

*Hymenena affinis* (Harv.) Kylin.

Lucas and Perrin 1947: 223.

Port Phillip Heads—area 59 (234).

*Myriogramme* Kylin.

*Myriogramme gunniana* (Harv.) Kylin.

Lucas and Perrin 1947: 218.

Southern bay—area 60 (85). Port Phillip Heads—area 59 (234).

*Myriogramme* sp.

Outside heads—area 66 (291).

*Nitophyllum* Greville.

*Nitophyllum parvifolium* J. Agardh?

J. Agardh 1876: 457.

Port Phillip Heads—area 58 (150–4).

*Nitophyllum* sp.

Northern bay—area 6 (118). Corio Bay—area 17 (170–2).

*Phitymophora* J. Agardh.

*Phitymophora imbricata* (Areschoug) J. Agardh.

Lucas and Perrin 1947: 230.

Port Phillip Heads—area 59 (79).

Family RHODOMELACEAE.

*Sarcomenieae.*

*Malaconema* Womersley and Shepley.

*Malaconema roeana* (Harvey) Womersley and Shepley.

Womersley and Shepley 1959: 204, 210.

Corio Bay—area 29 (107). South-western bay—area 42 (108, 109).

*Sarcotrichia* Womersley and Shepley.

*Sarcotrichia dolichocystidea* (J. Ag.) Womersley and Shepley.

Womersley and Shepley 1959: 192, 209–210.

Corio Bay—areas 18 (60–1), 26 (301), 29 (107).

*Polysiphonieae.*

*Lophurella* Schmitz.

*Lophurella periclados* (Sond.) Schmitz.

Lucas and Perrin 1947: 261.

Northern bay—areas 6 (118), 10 (103), 13 (93). Corio Bay—area 29 (107). South-western bay—area 42 (109).

*Polysiphonia* Greville.

As well as the following two species, others occur within the bay but collections made were not adequate for determination.

*Polysiphonia blandi* Harvey.

Lucas and Perrin 1947: 269.

South-western bay—area 50 (228).

*Polysiphonia cancellata* Harvey.

Lucas and Perrin 1947: 273.

Northern bay—area 9 (178). Corio Bay—areas 16 (142–3), 27 (138–9), 28 (140–1), 37 (40), 39 (313). Eastern bay—area 55 (39). South-western bay—areas 42 (281), 50 (266).

*Lophothalieae.*

*Brongniartella* Bory.

*Brongniartella australis* (Ag.) Schmitz.

Lucas and Perrin 1947: 283.

South-western bay—area 42 (108). Eastern bay—area 55 (35). Southern bay—areas 60 (85), 63 (17–19, 21).

*Lophothalia* Kuetzing.

*Lophothalia verticillata* (Harvey) Kuetz.

Lucas and Perrin 1947: 285.

Northern bay—area 12 (110). Corio Bay—area 30 (280). South-western bay—area 42 (108–9). Southern bay—area 63 (249).

*Lophothalia* sp.

Northern bay—areas 10 (15), 14 (4). Corio Bay—area 17 (170–1). Eastern bay—areas 23 (3, 9), 55 (22).

*Pterosiphonieae.*

*Dictymenia* Greville.

*Dictymenia harveyana* Sonder.

Lucas and Perrin 1947: 282.

Corio Bay—areas 28 (140), 30 (280). South-western bay—areas 42 (108–9), 50 (228). Central bay—area 51 (250). Southern bay—area 60 (85) Port Phillip Heads—area 59 (214, 224, 226).

*Placophorieae.*

*Jeannerettia* H. & H.

*Jeannerettia lobata* H. & H.

Lucas and Perrin 1947: 278.

Port Phillip Heads—area 59 (79, 214, 224).

*Jeannerettia pedicellata* (Harv.) Pap.

Lucas and Perrin 1947: 278.

Corio Bay—areas 15 (284), 30 (280). South-western bay—area 42 (109, 265). Southern bay—area 63 (17–19, 21).

*Polyzonieae.*

*Dasyclonium* J. Agardh.

*Dasyclonium incisum* (J. Ag.) Kylin.

[*Euzoniella incisa* (J. Ag.) Falk.]

Lucas and Perrin 1947: 287.

Port Phillip Heads—area 58 (150–4).—On *Gelidium australe*

Amansieae.

*Lenormandia* Sonder.

*Lenormandia prolifera* (Ag.) J. Ag.

Lucas and Perrin 1947: 302.

Southern bay—area 60 (85). Port Phillip Heads—area 59 (87, 224).

*Lenormandia smithiae* (H. & H.) Falk.

Lucas and Perrin 1947: 303.

Southern bay—area 60 (85).

*Chondrieae.*

*Cladurus* Falkenberg.

*Cladurus elatus* (Sond.) Falk.

Lucas and Perrin 1947: 251.

Port Phillip Heads—area 58 (150–4).

*Coeloclonium* J. Agardh.

*Coeloclonium opuntioides* (Harv.) J. Ag.

Lucas and Perrin 1947: 256.

South-western bay—areas 42 (109, 265), 50 (266). Central bay—area 51 (250).

*Laurencieae.*

*Laurencia* Lamouroux.

*Laurencia clavata* Sonder.

Outside bay—area 66 (291).

*Laurencia elata* (Ag.) Harvey.

Lucas and Perrin 1947: 249.

Port Phillip Heads—area 58 (293).

*Laurencia filiformis* (Ag.) Mont.

Lucas and Perrin 1947: 247.

Northern bay—areas 6 (137), 10 (103), 14 (4, 9, 95). Corio Bay—area 27 (41). Eastern bay—areas 23 (3), 47 (30).

*Laurencia heteroclada* Harvey.

Lucas and Perrin 1947: 247.

Port Phillip Heads—area 59 (36). Outside bay—areas 56 (295), 59 (23).

*Laurencia tasmanica* H. & H.

Lucas and Perrin 1947: 249.

Southern bay—area 61 (37). Port Phillip Heads—area 59 (23). Possible juvenile forms in Central Bay—areas 43 (303), 51 (250), and Port Phillip Heads—area 59 (79).

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